Third United Nations International Conference on the Peaceful Uses of Atomic Energy

A/CONF.28/A/355
USSR
February 1964
Original: RUSSIAN

Confidential until official release during Conference

Abstract

OPTIMIZING THE CHARACTERISTICS OF POWER REACTORS BY MEANS OF NON-UNIFORM DISTRIBUTION OF MATERIALS

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The paper deals with the problem of optimizing various parameters of power reactors (energy release profiles, temperature fields, etc.) by means of non-uniform distribution of materials within the reactor.

The problem under discussion is given, theoretical substantiation and methods are described thereby the reactor systems can be calculated so as to obtain optimal parameters of the reactor. The paper also describes the relevant computer code.

The paper dicusses the experimental techniques and the results of experiments in varying the energy release profiles by means of non-uniform distribution of fissionable material and moderator within the core. The experiments were carried out on critical assemblies with ligt-water, organic and beryllia moderators and consisted in measuring the flux and fission integral distribution for various laws of distribution of fissionable material and moderator. The experimental results are compared with the theoretical characteristics of systems.

Translation provided by courtesy of the submitting Government